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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/893,825
Filing Date: June 28, 2001
Appellant(s): FAIBISH ET AL.

Richard C Auchterlonie
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/03/2006 appealing from the Office action mailed 05/03/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6115740	Mizutani	12-2000
5,892,535	Allen et al	04-1999

"Rank." 2nd Def, Def 2a, 3rd Def, Def 2. Merriam-Webster's Collegiate Dictionary. 10th ed. 1998.

"Configure." Merriam-Webster's Collegiate Dictionary. 10th ed. 1998.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 2-9, 11-14, 16-23, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong et al. "Armstrong" (WO 2000/60861) in view of Mizutani (U.S. 6,115,740).

Regarding Claim 2, Armstrong discloses in figure 1 a video-on-demand system that provides clients with access to movies on demand. Armstrong teaches, "a cached disk storage system including a primary cache and disk storage for storing the movies" by disclosing remote head-end 210R or "cached disk storage system" in figure 2, which comprises primary storage partition 218 or "primary cache" and secondary storage partition 219 or "disk storage" for storing movies.

Armstrong teaches "a multiplicity of data mover computers coupled to the cached disk storage system for streaming video data from the cached disk storage system to clients in a data network, each of the data mover computers having a local cache" by disclosing headend 210_2-210_n that comprise primary storage 216_2-216_n or "local cache".

Armstrong teaches, "wherein the movies are ranked with respect to popularity..." by disclosing primary storage partition 218 is used to store frequently requested video assets and secondary storage partition 219 is used to store infrequently requested video assets (page 10, lines 1-10).

Armstrong teaches "wherein the data movers in the respective sets of data movers are configured differently for providing more network interface resources for very popular movies and for providing more local cache memory resources for less popular movies" by disclosing headend 210_2-210_n comprise primary storage partition 218 is used to store frequently requested video assets and secondary storage partition 219 is used to store infrequently requested video assets. However, Armstrong fails to disclose a respective set of data movers are pre-assigned for servicing video streams for each movie ranking.

In an analogous art, Mizutani teaches using the predicted number of times that the content i is simultaneously accessed at the time t is represented by Pi(t) and the equation for B(i,t) is used to determine if content is lacking resources to determine how many streams on each server are necessary to facilitate requests (Col. 6, lines 32-38). Figure 7 further discloses pre-assigning content, C0 and C1, to servers SV0 and SV1 or "data movers". Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Armstrong with the teachings of Mizutani in order to pre-assign data movers to service video streams for the benefit of making more resources available for more popular content (Column 4, lines 3-23) as disclosed by Mizutani.

As for Claim 3, Armstrong and Mizutani disclose, in particular Armstrong teaches "wherein for very popular movies, the very popular movies are retained in their entirety in local cache of the data movers assigned to service the very popular movies" by disclosing headend 210_n comprising primary storage partition 218 used to store frequently requested video (page 10).

As for Claim 4, Armstrong fails to disclose the sets of data movers include a set consisting of more than one data mover for servicing one very popular movie, a set consisting of one data mover for servicing only one movie, and a set consisting of one data mover for servicing a plurality of the movies.

In an analogous art, Mizutani discloses in figure 16, which is admitted to be prior art by Mizutani, show static video servers 110-112 servicing C0, video servers 111 and 112 provide service for C1, while video servers 114 and 115 service C2. Video server 115 services the remaining content, C2, C3, C4, and C5. Although the teachings of Mizutani are prior art, his improvement over the admitted prior art is the ability to copy and move content to other servers or "data movers" to provide more network resources. Accordingly, the teachings of figure 16, multiple servers or "data movers" used to service popular movies and a single server or "data mover" to service several unpopular movies can still be incorporated into Mizutani's preferred embodiment. Mizutani discloses in Figure 16 that only one movie or content is serviced by a data mover

(Figure 16, Column 43-54). Mizutani discloses that a content or program CO can be accessed for a number of streams and if the number exceeds a threshold value, the content is copied or moved to another server or data mover which services the content and that content C1 is deleted or moved from the server or data mover as number of streams accessed is small (Column 5, lines 33-40, Column 12, lines 9-25). Therefore, if the number of streams accessed for content CO is 20 and the video server can service only 20 streams and a popular movie can be serviced by one data mover, then Mizutani's teachings of the prior art can be incorporated into the preferred embodiment, which can be interpreted that one data mover is servicing only one movie.

As for Claim 5, Armstrong and Mizutani disclose, in particular Armstrong teaches "a series of at least some of the data movers include direct links for transfer of movie data from a data mover set servicing one movie ranking to a data mover set servicing a next...movie ranking and for transfer of movie data from the data mover set servicing the one movie ranking to a data mover set servicing a next...movie ranking" by disclosing in figure 2, the process of where infrequently requested video content is deemed desirable to have stored at other head-ends 210, the infrequently requested video asset is retrieved from the remote head-end 210R and is transmitted by the remote video stream server 214R across inter-server network 260, to the local head-ends 210. Armstrong *fails to explicitly* disclose transferring the movie data to a data mover servicing a next higher/lower movie ranking. Mizutani teaches the movies can be moved between servers or movies can be deleted (Column 10, lines 54-67, Column 11, lines 1-40, Column 12, lines 9-17). Mizutani discloses that if a movie is less popular

and threshold rate is exceeded, the movie is moved to another server or server servicing the next higher movie ranking (less requested to highly requested) and if the number of requests for movie is small then the movie is deleted or moved to another server or data mover servicing the next lower movie ranking or highly requested to less requested (Column 5, lines 33-40, Column 10, lines 54-67, Column 11, lines 1-40, Column 12, lines 9-38).

As for Claim 6, Armstrong fails to disclose data mover resources for a certain number of video streams from the data movers to the clients are reserved for each of a multiplicity of the movies.

In an analogous art, Mizutani teaches in figure 16, a higher number of streams are reserved for more popular content, like C0, and the streams are divided among a plurality of video servers as shown. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Armstrong in view of Mizutani in order to reserve video streams on each data mover for popular content for the benefit of making available more streams for popular content and less streams for unpopular content.

As for Claim 7, Armstrong and Mizutani disclose, in particular Armstrong teaches "wherein the video file server is programmed for locking in the primary cache a plurality of entire movies, and when there is a need for servicing a more popular movie from the primary cache and there is insufficient free cache memory for servicing the more popular movie from the primary cache, transferring the servicing of a less popular movie

from the primary cache to disk storage in order to free cache memory for servicing the more popular movie from the primary cache" by disclosing primary storage partition 218 on headend 210_n is used to store frequently requested video (page 10, lines 1-2). Armstrong discloses moving videos from secondary storage partition 219 to primary storage partition 218 if the video exceeds a threshold value of requests from users (page 12, lines 3-14). Armstrong teaches when an unpopular movie becomes popular the movie is copied from secondary storage partition 219 and moved to primary storage partition 218. Further, Armstrong discloses when the video then drops below the threshold the video is then copied back to secondary storage partition 219 and deleted from primary storage partition 218 (page 12, line 23 to page 13, line 2).

As for Claim 8, Armstrong and Mizutani disclose, in particular Armstrong teaches "wherein the video file server is programmed for freeing primary cache memory by transferring the servicing of a least popular movie in the primary cache from the primary cache to the disk storage so long as no more than a certain number of video streams are being serviced concurrently from the least popular movie in the primary cache" by disclosing if a frequently requested video stored at the primary storage partition or "primary cache" becomes infrequently requested over a period of time, the video is transferred to secondary storage partition 219 or "disk storage" and the video asset is deleted from the primary storage partition 218 to prevent duplicate storage (page 12, line 23 to page 13, line 2).

As for Claim 9, Armstrong fails to disclose wherein the video file server is programmed for negotiating with a client for selection of an available movie during peak demand when resources are not available to select freely any movie in the disk storage for which a video stream can be started.

In an analogous art, Mizutani discloses in figure 7, dynamic allocating means 22 receiving a request from a client. As shown, delivering video server determining means 22a receives the initial request and if the requested content C0 cannot be delivered to the client, a contents delivery rejecting means 22g indicates a rejection of the delivery of the content C0 to the client. The negotiation occurs by the client makes a request content and the server and client come to a conclusion when the server delivers the requested video or when the server notifies the client that the requested content is not available (Column 9, lines 40-43). Mizutani fails to specify whether this negotiation between the video server and client takes place during peak demand. The examiner gives Official Notice that it is notoriously well known in the art of video on demand, for negotiation of video content to occur during peak demand. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Armstrong with the teachings of Mizutani to specify a system where negotiation takes place with a client during the peak demand hours for the benefit of providing communication to the client when resources are currently unavailable in the video server for the client.

(In support of the Official Notice: Allen et al (US 5,802,535 and hereafter referred to as "Allen") discloses that a negotiation takes place with a client during the peak

demand hours (Column 46, lines 23). It would have been obvious at the time the invention was made to modify the combination to include a negotiation takes place with a client during the peak demand hours (Column 46, lines 5-23) as taught by Allen in order to provide popular movies to the client (Column 46, lines 5-23) and to communicate that the movie is currently unavailable but the next available start time (Column 46, lines 5-23) as disclosed by Allen.)

Regarding Claim 12, Armstrong discloses in figure 1 a video-on-demand system that provides clients with access to movies on demand. Armstrong teaches, "a cached disk storage system including a primary cache and disk storage for storing the movies" by disclosing remote head-end 210R or "cached disk storage system" in figure 2, which comprises primary storage partition 218 or "primary cache" and secondary storage partition 219 or "disk storage" for storing movies.

Armstrong teaches "a multiplicity of data mover computers coupled to the cached disk storage system for streaming video data from the cached disk storage system to clients in a data network, each of the data mover computers having a local cache" by disclosing headend 210_2-210_n that comprise primary storage 216_2-216_n or "local cache".

Armstrong teaches "wherein the video file server is programmed for locking in the cache a plurality of entire movies, and when there is a need for servicing a more popular movie from the primary cache and there is insufficient free cache memory for servicing the more popular movie from the cache, transferring the servicing of a less popular movie from the cache to disk storage in order to free cache memory for

servicing the more popular movie from the cache" by disclosing primary storage partition 218 on headend 210_n is used to store frequently requested video (page 10, lines 1-2). Armstrong discloses moving videos from secondary storage partition 219 to primary storage partition 218 if the video exceeds a threshold value of requests from users (page 12, lines 3-14). Armstrong teaches when an unpopular movie becomes popular the movie is copied from secondary storage partition 219 and moved to primary storage partition 218. Further, Armstrong discloses when the video then drops below the threshold the video is then copied back to secondary storage partition 219 and deleted from primary storage partition 218 (page 12, line 23 to page 13, line 2).

Armstrong teaches "wherein each of the data mover computers has a local cache, the movies are ranked with respect to popularity...and the data movers in the respective sets of data movers are configured differently for providing more network interface resources for very popular movies and for providing more local cache memory resources for less popular movies" by disclosing head-ends 210_2-210_n comprise primary storage 216. The head-ends or "data movers" are configured to provide more network interface resources for very popular movies by the use of primary storage 216, which comprises primary storage partition 218. Primary storage partition 218 is used to store frequently requested movies or "popular movies". Less popular movies are stored on secondary storage partition 219 or "local cache".

Armstrong fails to disclose a respective set of data movers are pre-assigned for servicing video streams for each movie ranking. In an analogous art, Mizutani teaches in figure 7 storing movies, represented by C0 and C1, to pre-assigned data storing

means or "data movers". Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Armstrong with the teachings of Mizutani in order to pre-assign data movers to service video streams for the benefit of making more resources available for more popular content (Column 4, lines 3-23) as disclosed by Mizutani.

Considering Claim 11, the claimed elements of wherein the video file server is programmed for freeing locked cache memory by transferring the servicing of the least popular movie in the cache from the cache to the disk storage so long as no more than a certain number of video streams are being concurrently serviced from the least popular movie in the cache, corresponds with subject matter mentioned above in the rejection of claim 8, and is likewise treated.

Considering Claim 13, the claimed elements of wherein a series of at least some of the data movers include direct dedicated links for transfer of movie data from a data mover set servicing one movie ranking to a data mover set servicing a next higher movie ranking and for transfer of movie data from the data mover set servicing the one movie ranking to the data mover set servicing a next lower movie ranking, corresponds with subject matter mentioned above in the rejection of claim 5, and is likewise treated.

As for Claim 14, Armstrong fails to disclose data mover resources for a certain number of video streams from the data movers to the clients are reserved for each of a multiplicity of the movies.

In an analogous art, Mizutani teaches in figure 16, that a higher number of streams are reserved for more popular content (C0) and the streams are divided among a plurality of video servers as shown. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Armstrong with the teachings of Mizutani in order to reserve resources for a certain number of video streams on each data mover for the benefit of providing as many resources as possible for popular content and limiting the amount of streams available for unpopular content.

Regarding Claims 16, Armstrong teaches a method of providing video on demand by disclosing the use of a plurality of head-ends 210 or "data movers" comprising of primary storage 216 or "cached disk storage system". Armstrong further teaches the use of a remote head-end 210R comprising primary storage partition 218 and secondary storage partition 219.

Armstrong teaches "ranking the movies with respect to popularity" by disclosing primary storage partition 218 is used to store frequently requested video and secondary storage partition 219 is used to store infrequently requested video.

Armstrong teaches "configuring differently the data movers in the respective sets of data movers in order to provide more network interface resources for very popular

movies and for providing more local cache memory resources for less popular movies" by disclosing each head-end 210 or "data mover" comprise primary storage 216 which comprises primary storage partition 218 and secondary storage partition 219. Primary storage partition 218 is used to store frequently requested video and secondary storage partition 219 or "local cache" is used to store infrequently requested video. Armstrong fails to disclose assigning a respective set of the data movers to each movie ranking, and servicing video streams for each movie ranking with the respective set of data movers assigned for servicing said video streams for said each movie ranking.

In an analogous art, Mizutani teaches in figure 7 storing movies, represented by C0 and C1, to pre-assigned data storing means or "data movers". Further, Mizutani teaches "servicing video streams for each movie ranking with the respective set of data movers assigned for servicing said video streams for said each movie ranking" as disclosed in figure 16, a higher number of streams are reserved for more popular content, like C0, and the streams are divided among a plurality of video servers as shown. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Armstrong with the teachings of Mizutani in order to pre-assign content to data movers for the benefit of dedicating servers to specific content to better effectively manage resources (Column 3, lines 48-50, Column 4, lines 3-23) as disclosed by Mizutani.

Considering Claim 17, the claimed elements of wherein for very popular movies, retaining the very popular movies in their entirety in the local cache of the data movers assigned to service the very popular movies, corresponds with subject matter mentioned above in the rejection of claim 3, and is likewise treated.

Considering Claim 18, the claimed elements of servicing a most popular movie with an assigned data mover set consisting of more than one data mover, servicing only one movie with an assigned data mover set consisting of one data mover, and servicing a plurality of movies with an assigned data mover set consisting of one data mover, corresponds with subject matter mentioned above in the rejection of claim 4, and is likewise treated.

Considering Claim 19, the claimed elements of wherein a series of at least some of the data movers are linked by direct dedicated data links and the method includes transferring movie data from a data mover set servicing one movie ranking to a data mover set servicing a next higher movie ranking and transferring movie data from a data mover set servicing the one movie ranking to a data mover set servicing a next lower movie ranking, corresponds with subject matter mentioned above in the rejection of claim 5, and is likewise treated.

Considering Claim 20, the claimed elements of reserving data mover resources for a respective number of video streams from the data movers to the clients for each of

a multiplicity of the movies, corresponds with subject matter mentioned above in the rejection of claim 14, and is likewise treated.

Considering Claim 21, the claimed elements of locking in the primary cache a plurality of entire movies, and when there is a need for servicing a more popular movie from the primary cache and there is insufficient free cache memory for servicing the more popular movie from the primary cache, transferring the servicing of a less popular movie from the primary cache to the disk storage in order to free primary cache memory for servicing the more popular movie from the primary cache, corresponds with subject matter mentioned above in the rejection of claim 7, and is likewise treated.

Considering Claim 22, the claimed elements of freeing primary cache memory by transferring the servicing of a least popular movie in the primary cache from the primary cache to the disk storage so long as no more than a certain number of video streams are being concurrently serviced from the least popular movie in the primary cache, corresponds with subject matter mentioned above in the rejection of claim 8, and is likewise treated.

Considering Claim 23, the claimed elements of the video file server negotiating with a client for selection of an available movie during peak demand when resources are not available to select freely any movie in the disk storage for which a video stream

can be started, corresponds with subject matter mentioned above in the rejection of claim 9, and is likewise treated.

Regarding Claims 26, Armstrong teaches a method of providing video on demand by disclosing the use of a plurality of head-ends 210 or "data movers" comprising of primary storage 216 or "cached disk storage system". Armstrong further teaches the use of a remote head-end 210R comprising primary storage partition 218 and secondary storage partition 219.

Armstrong teaches "locking in the cache a plurality of entire movies, and when there is a need for servicing a more popular movie from the cache and there is insufficient free cache memory for servicing the more popular movie from the cache, transferring the servicing of a less popular movie from the cache to the disk storage in order to free cache memory for servicing the more popular movie from the cache" by disclosing primary storage partition 218 on headend 210_n is used to store frequently requested video (page 10, lines 1-2). Armstrong discloses moving videos from secondary storage partition 219 to primary storage partition 218 if the video exceeds a threshold value of requests from users (page 12, lines 3-14). Armstrong teaches when an unpopular movie becomes popular the movie is copied from secondary storage partition 219 and moved to primary storage partition 218. Further, Armstrong discloses when the video then drops below the threshold the video is then copied back to secondary storage partition 219 and deleted from primary storage partition 218 (page 12, line 23 to page 13, line 2).

Armstrong teaches "wherein each of the data mover computers has a local cache, the movies are ranked with respect to popularity...and the data movers in the respective sets of data movers are configured differently for providing more network interface resources for very popular movies and for providing more local cache memory resources for less popular movies" by disclosing head-ends 210_2-210_n comprise primary storage 216. The head-ends or "data movers" are configured to provide more network interface resources for very popular movies by the use of primary storage 216, which comprises primary storage partition 218. Primary storage partition 218 is used to store frequently requested movies or "popular movies". Less popular movies are stored on secondary storage partition 219 or "local cache".

Armstrong fails to disclose a respective set of data movers are pre-assigned for servicing video streams for each movie ranking. In an analogous art, Mizutani teaches in figure 7 storing movies, represented by C0 and C1, to pre-assigned data storing means or "data movers". Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Armstrong with the teachings of Mizutani in order to pre-assign data movers to service video streams for the benefit of making more resources available for more popular content (Column 4, lines 3-23) as disclosed by Mizutani.

Considering Claim 25, the claimed elements of freeing locked cache memory by transferring the servicing of a least popular movie in the cache from the cache to the disk storage so long as no more than a certain number of video streams are being

concurrently serviced from the least popular movie in the cache, corresponds with subject matter mentioned above in the rejection of claim 8, and is likewise treated.

(10) Response to Argument

Claims 2-4, 6-9, 11-12, 14, 16-18, 23, 25-26

Argument1:

The appellant states that Armstrong teaches a primary storage partition stores frequently requested video assets and secondary storage partition is used store infrequently requested video assets (Page 18). The appellant argues that ranking is different from simply classifying movies as either frequently requested or not frequent requested and that the verb rank is "to arrange in a series in ascending or descending order of importance" and that the definition given by the examiner for rank was used as a noun (Pages 18-19).

In response to appellant's arguments, Merriam-Webster's 10th edition Collegiate Dictionary defines rank (verb) as "to determine the relative position of." Armstrong discloses ranking or determining the relative position of the movies based on which movies are frequently requested and which movies are infrequently requested. The appellant's dictionary definition contains one definition of the word and rank has many definitions and based on the dictionary definition, Armstrong discloses the movies are ranked with respect to popularity (Page 10, lines 1-9).

Argument 2:

The appellant argues that Armstrong does not teach data movers in respective sets of data movers are configured differently for providing more network interface resources for very popular movies and for providing more network interface resources for very popular movies and for providing more local cache memory resources for less popular movies (Page 19). The appellant argues that Armstrong discloses that data movers has the same configuration with respect to cache resources and network interface resources (Page 19) and that the "appellant's data movers are configured by having fewer cache RAM cards and more network interface cards in the data movers assigned to storing and servicing the less popular movies (Appellant's original specification, page 13, lines 15-23)" (Pages 19-20). The appellant also argues that that the popular move is stored on network interface resource and not a primary storage partition which is a local cache (Page 20) and the appellant's independent claims specify that data movers that service more popular movies have fewer cache memory resources and more interface resources than data movers that service less popular movies (Pages 20-21).

In response to appellant's arguments, Merriam-Webster's 10th edition Collegiate Dictionary defines configure as to set up for operation esp. (especially) in a particular way. The term "network interface resource" may be interpreted very broadly and can be interpreted to be a memory device as every memory is a network resource. Therefore,

the primary storage partitions are network interface resources. Armstrong discloses that data movers for providing more network interface resources to store most frequently requested or most popular movies in the network interface resources or primary storage partition (Page 10, lines 1-9, Figure 2) and a request from a subscriber to view a frequently requested video asset or popular movie that is stored in the network interface resource is immediately delivered to the requesting subscriber. Armstrong further discloses due to storage constraints less popular movies (based on request rate to be least popular in the neighborhood) may not be stored at a particular data mover or headend and additional storage is needed (Page 10, lines 10-19, 27-32, Page 11, lines 3-7, Figure 2). Therefore, Armstrong teaches that the data movers are configured differently as the data movers are set up to for operation in a particular way and each data mover has popular movies stored in network interface resources and less popular movies in the local cache memory resources (Figure 2, 218, 219, Page 10, lines 1-16).

Moreover, the appellant is arguing details that are not recited in the claims. The examiner would like to clarify that the applicant's specification discloses that the physical configuration of each data mover depends on the rank of the movie or movies to be serviced by the data mover and a data mover services higher ranking mover has more network interface cards and fewer cache RAM cards than data movers servicing lower ranking movies (Page 13, lines 15-23). The independent claims do not disclose that the data movers service more popular movies have fewer cache memory resources and more network interface resources. The independent claims disclose that the data movers are configured differently for providing more memory resources for very popular

movies and more local cache memory for less popular movies. The appellant's specification clearly discloses what the appellant is arguing, however, the claim language does not disclose this argument and therefore is moot.

Furthermore, the claim language can lead to an interpretation of data movers are configured differently for providing more network interface resources for very popular movies or data movers for providing more local cache memory resources for less popular movies. The claim language does not disclose that the local cache stores less popular movies only. Mizutani teaches that data movers or video servers provide more network interface resources for popular movies as popular movies are moved and/or copied to other servers if the number of streams exceeds a threshold value based on the number of accesses to the movie and one or more video servers or data movers provide for more local cache memory resources for less popular movies as less popular movies are moved or deleted from previous servers or the number of streams is small based on the number of accesses (Column 5, lines 33-40, Column 10, lines 54-67, Column 11, lines 1-40, Column 12, lines 9-17). Therefore, Mizutani discloses that data movers are configured differently and the data movers provide for more network interface resources or memories for popular movies and data movers provide for more local cache memory resources for less popular movies as data movers provide more popular movies or data movers provide less popular movies based on the number of accesses (Column 5, lines 33-40, Column 10, lines 54-67, Column 11, lines 1-40, Column 12, lines 9-17).

Argument 3:

The appellant argues that Mizutani does not teach pre-assigning data movers to servicing video streams for each movie ranking (Pages 23-24). The appellant argues that Mizutani teaches using predicted number of times the content I is accessed at the time t is represented by Pi(t) and the equation B(i,t) is used to determine if content is lacking resources (Column 6, lines 32-38) and that "ranking is different from a number of lacking resources" (Page 23). The appellants argue that Mizutani does not appear to care which contents are popular and which are not because the invention of Mizutani should dynamically move content between the servers to suit changing conditions (Page 24).

In response to the arguments, rank means "to determine the relative position of" as defined above in the response to argument 1. Mizutani teaches that movies that are predicted to be highly requested or popular are assigned to more video servers whereas movies that are predicted to be less requested or less popular are combined with other less popular movies in a video server (Column 10, lines 54-67, Column 11, lines 1-40, Column 12, lines 9-17). Mizutani discloses pre-assigning video streams to video server based on video ranking by disclosing movies that are to be accessed many times over a movie that may not be accessed as much are provided one or more video servers (Figure 7, 11, and 16, Column 10, lines 54-67, Column 11, lines 1-40, Column 12, lines 9-17). Therefore, if a movie is predicted to be accessed more than movies that are not

anticipated or predicted to be accessed as often will be pre-assigned to video servers or data mover based on ranking as the number of times a content or movie is accessed determines its popularity.

Argument 4:

The appellant argues hindsight reconstruction using the applicant's specification, as guide is improper because it fails to consider the subject matter of the invention and fails to consider the invention as of the data at which the invention was made.

In response to the appellant's arguments that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The examiner searches and considers prior art based on the claim limitations disclosed and the appellant's specification was not used as a guide as the specification only provides details for the claims. The prior art of record discloses the claim limitations and are combined for the benefit of making more resources available for more popular content (Column 4, lines 3-23) as disclosed by Mizutani.

Claims 5 and 13

Argument 1:

The appellant argues that it is not clear whether the links in Armstrong between the head end servers are direct or not and that it is well known in the art to transfer movie data to servers serving a next higher/lower movie ranking and in the context of appellant's specification (Page 26).

In response to the argument, Merriam-Webster's 10th edition Collegiate Dictionary defines rank (noun) as a relative standing or position. Therefore, a ranking is very popular or less popular. Armstrong discloses the data movers include direct links for transfer of a movie from a data mover set to another data mover set servicing a next ranking (Page 10, lines 10-19, 27-32, Page 11, lines 3-7, Figure 2). The applicant's own admission discloses that Mizutani disclose contents being copied, moved and deleted based on the predicted number of accesses (Page 23 of Appeal Brief – Middle of Page). Mizutani teaches the movies can be moved between servers or movies can be deleted (Column 10, lines 54-67, Column 11, lines 1-40, Column 12, lines 9-17). Mizutani discloses that if a movie is less popular and threshold rate is exceeded, the movie is moved to another server or server servicing the next higher movie ranking (less requested to highly requested) and if the number of requests for movie is small then the movie is deleted or moved to another server or data mover servicing the next lower movie ranking (more popular to less popular) (Column 5, lines 33-40, Column 10, lines 54-67, Column 11, lines 1-40, Column 12, lines 9-38).

Argument 2:

The appellant argues that the final Office Action states "Armstrong fails to explicitly disclose transferring the movie data to a data mover servicing a next higher/lower movie ranking" (Page 26). Appellants argue if it is well known in the art to transfer movie data to servers.

The rejection of the final office action states "Armstrong *fails to explicitly disclose* transferring the movie data to a data mover servicing a next higher/lower movie ranking." Armstrong, as discussed above in the response to Argument 1 and the grounds of rejection section, discloses data movers with direct links and moving movies with lower ranking from data server to the server servicing the next higher ranking (Page 10, lines 10-19, 27-32, Page 11, lines 3-7, Figure 2). Mizutani discloses as stated above that data movers move movies based on popularity to servers or data movers servicing the next ranking (Column 5, lines 33-40, Column 10, lines 54-67, Column 11, lines 1-40, Column 12, lines 9-38). The combination of Armstrong and Mizutani teaches transferring movie data to a data mover servicing a next higher or lower movie ranking in order to make more resources available for more popular content (Column 4, lines 3-23). See above response to Argument 1 of Claims 5 and 13.

Argument 3:

The appellant again argues that Armstrong and Mizutani fail to disclose servers that are configured differently for providing one set of servers that are better suited for

serving more popular movies and another set of servers that are better suited for less popular movies (Pages 26-27).

In response to the argument, these are the same arguments made for the independent claims. See response to Argument 2 of Claims 2-4, 6-9, 11-12, 14,16-18, 23, and 25-26.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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